DEFENSE BUSINESS BOARD

Report to the Secretary of Defense

Task Group on Assessing the Defense Industrial Base

Report FY10-05

- **Recommendations to position the Department to respond in a manner that ensures the industrial base can continue to support ongoing operations, meet future needs, and have the capacity for surge**

January 2010

Report Documentation Page

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Assessing the Defense Industrial Base

TASK

The Under Secretary of Defense, Acquisition, Technology, and Logistics (USD(AT&L)) tasked the Defense Business Board (DBB) to form a Task Group to identify the potential implications for the industrial base of downward pressure on defense budgets. The Task Group was also charged to provide recommendations for key policy and management initiatives to enable the Department to respond, ensuring the industrial base continues to support ongoing operations, meets future needs, and has surge capacity. Specifically, the Task Group was asked to consider the structural changes that defense companies might undergo (e.g., capital source options, mergers, acquisitions, or spin-offs), and summarize the resulting benefits and risks to the Department. A copy of the official Terms of Reference (TOR) outlining the scope and deliverables for the Task Group can be found at **Appendix A**.

The Task Group was chaired by Philip Odeen. Other Task Group members included: Denis Bovin, Pierre Chao, and Alan Schwartz. The Task Group Executive Secretary was Captain Michael Bohn, USN.

PROCESS

The Task Group sought input from companies in the defense industrial base, both service and hardware companies, industry organizations, and DoD stakeholders. The Task Group spoke with the chief executives and senior leaders of these companies and organizations. To encourage candid comments the Task Group promised anonymity to interviewees.

Additionally, the Task Group met with the USD(AT&L) during the study to ensure the Group's efforts would meet his expectations.

The Task Group presented their findings and recommendations to the full Board on January 21, 2010 **(see Appendix B)**.

FINDINGS

The Task Group categorized the assessment of the impact of constrained budgets into three areas: the traditional industrial base, services sector, and access to technology. An overview of the findings follows with detailed information provided in **Appendix B**.

Area 1: Industrial Base

The range of responses by the traditional industrial base includes:

- Milk the business for profits and cash (or go private supported by private equity firms)
- Diversify into other federal government agencies, state and local governments, or the commercial sector
- Acquire to build backlog and revenue, new capabilities, and customers
- Exit the DoD market to focus on the commercial market

The scale of defense funding reductions will determine the aggressiveness of the actions of hardware and services providers, and the implications for DoD. Two cases were considered: modest top line reductions (5 to 10%) and more significant cuts (15 to 20%). The cuts to procurement spending are projected to be roughly double the top line reductions.

Area 2: Services Sector

The services sector is growing rapidly and is highly competitive. The major primes have built large service businesses and a number of services focused companies exceed $1B in revenue. But, the number of small companies is also growing and they receive about 20% of the contract value.

- The sector is increasingly important to battlefield success as the role of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); software; and connectivity is more critical
- Conflict issues are emerging (organizational conflict of interest (OCI)) as the hardware providers move into services businesses
- The dominant role (70% of contract value) of task order type contracts (e.g. Government Wide Acquisition Contracts (GWACs)) has changed the competitive landscape increasing competition and squeezing mid-sized firms

Companies in this sector are less impacted by DoD budget cuts due to their funding sources and broader customer base (e.g. domestic agencies). Insourcing is considered by industry to be a “wild card” with inconsistent, often confusing guidance and practices.

Area 3: Access to Technology

Critical technologies and products are a growing challenge for DoD. The issues in ensuring access to technology in a period of reduced spending are driven by:

- The dependence on defense-unique technology
- The degree the technology providers are deeply integrated with the commercial sector
- The role of foreign firms when they are the critical providers

Each area has its own challenges and implications.

RECOMMENDATIONS

The Task Group recommendations are also organized by the three areas: the traditional industrial base, the services sector, and access to technology.

Area 1: Industrial Base

To ensure the traditional industrial base continues to be responsive to its needs, DoD should:

- When developing policies and tools, recognize the broad diversity of the industrial base, depending on size, nature of the products and technology, and the competitive landscape
- Seek to retain competition except where it is cost prohibitive. This is especially important in new, high leverage areas (e.g. C4ISR)
- Use Broad Agency Announcements (BAAs), prototypes, and reach out to DoD's laboratories to indentify new capabilities, new providers, and encourage the current companies to invest in innovation
- Maintain a robust two-way dialogue with the industrial base

Area 2: Services Sector

DoD should use available tools to ensure the services sector remains highly competitive and responsive:

- With constrained budgets and intense competition, particular care will be needed to ensure quality is not compromised
- Concern over Organizational Conflicts of Interest (OCI) will require careful attention to OCI policies and the impact of acquisitions/mergers
- Confusion around DoD's policy to insource needs to be clarified as it complicates the service companies' planning and staffing

Finally, given the key role of contractors supporting combat operations, it is critical they are integrated into the contingency planning process.

Area 3: Access to Technology

To ensure the industrial base retains access to crucial technology, expertise, and capabilities, DoD should:

- Closely monitor DoD technology needs and focus on areas of significant risk
- Maintain an active dialogue with the base to share information on future needs, potential technologies, and significant risks
- Use Science and Technology (S&T) spending, Independent Research and Development (IR&D) spending, and other investments to encourage the industrial base to develop innovative technology
- Use BAAs, DoD's R&D laboratory outreach, etc. to identify promising technology beyond the traditional DoD base

Additionally, all of the above recommendations will require deeper engagement by DoD with its industrial suppliers.

CONCLUSION

The Department's partnership with industry is fundamental to ensuring the industrial base will continue to support DoD's future needs. As resources are constrained, the challenges will increase and the industrial base will be forced to respond. DoD will need creative policies and an active dialogue with industry to ensure continued support for the war fighters.

The Board urges USD(AT&L) to consider the Task Group's findings and implement its recommendations to ensure continued support from the defense industrial base in the event of significant budget reductions.

Respectfully submitted,

Mr. Phillip Odeen
Task Group Chair

APPENDIX A

TERMS OF REFERENCE

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DEFENSE BUSINESS BOARD
1155 DEFENSE PENTAGON
WASHINGTON, DC 20301-1155

DEFENSE
BUSINESS
BOARD

29 July 2009

MEMORANDUM FOR PHIL ODEEN
DENIS BOVIN
PIERRE CHAO
ALAN SCHWARTZ

SUBJECT: Terms of Reference – "Assessing the Defense Industrial Base"

Given the potential for downward pressure on future defense budgets, the Department must anticipate how these changes might impact the defense industrial base and be prepared to respond or adapt to these changes. I request you form a Task Group to identify the potential implications for the industrial base and provide recommendations for key policy and management initiatives that will position the Department to respond in a manner that ensures the industrial base can continue to support ongoing operations as well as future needs and capacity for surge.

In your review, please consider the structural changes that defense companies might undergo (e.g., capital source options, restructuring through mergers, acquisitions, or spin-offs), and include a summary of the inherent benefits and risks to the Department in each of these scenarios. Also, identify alternative DoD governance oversight structures and their effects.

Phil will serve as chair to the group with help from Denis, Pierre, and Alan. CAPT Michael Bohn, USN, will serve as the Task Group Secretariat Representative. Your group should plan to present your findings and draft recommendations to the Board no later than the January 2010 quarterly meeting.

As a subcommittee of the Board, and pursuant to the Federal Advisory Committee Act of 1972, the Government in the Sunshine Act of 1976, and other appropriate federal regulations, this Task Group shall not work independently of the Board's charter, and shall report its recommendations to the full Board for public deliberation. The Task Group does not have the authority to make decisions on behalf of the chartered Board, nor can they report directly to any federal officer or employee who is not also a Board member. This Task Group will avoid discussing "particular matters" within the meaning of Section 208 of Title 18, U.S. Code, and will not cause any member to be placed in the position of acting as a procurement official.

Michael J. Bayer
Chairman

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APPENDIX B

FINDINGS AND RECOMMENDATIONS PRESENTED TO THE FULL BOARD ON JANUARY 21, 2010

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DEFENSE BUSINESS BOARD

Assessing the Defense Industrial Base

Task Group

January 21, 2010

Task Group Overview

Terms of Reference

Provide the Under Secretary of Defense, Acquisition, Technology, and Logistics (USD(AT&L)) with potential implications for the industrial base in an environment of continued downward pressure on future defense budgets. Identify potential coping strategies that defense companies might undergo (e.g., capital source options, restructuring through mergers, acquisitions, or spin-offs), and consider inherent benefits and risks to the Department in each of these scenarios, and resulting DoD governance oversight structures and their effects.

Deliverables

Provide recommendations for key policy and management initiatives that will position the Department to respond in a manner that ensures the industrial base can continue to support ongoing operations, meet future needs, and have the capacity for surge.

Task Group

Mr. Phil Odeen (Chair)
Mr. Denis Bovin
Mr. Pierre Chao
Mr. Alan Schwartz

Military Assistant

Captain Michael Bohn, USN

Process

- Interviewed senior leaders from
  - Companies within the existing defense industrial base
  - Service provider companies
  - Industry organizations
  - DoD stakeholders

- Reviewed former studies

- Mid course updated to USD(AT&L) who requested additional assessments
  - A more detailed analysis of the possible responses of the industrial base to constrained budgets with specific examples
  - More analysis on the composition and competitive dynamics of the services sector and likely results and responses to budget pressure
  - A fuller examination of issues and options necessary to ensure DoD retains access to the best technology needed to support the war fighter

Findings - Industrial Base

- Range of strategic options for companies in this environment
  - ”Milk the business” for profits and cash flow
  - Diversify using existing capabilities
    - Commercial Markets (failed in the 1990s)
    - Other federal areas – Intel, DHS, etc. (but much smaller markets)
    - International Markets
  - Acquire in order to horizontally or vertically integrate
    - Move into new government markets
    - Maintain/grow top line
    - Buy backlog/capability
    - Broaden product lines
    - Increase financial scale
  - Acquire significant commercial business
    - Adjacent areas leveraging current expertise (e.g. commercial IT)
    - Exploit areas that promise significant growth (e.g. healthcare) where government experience is relevant
  - Exit the DoD market – sell or close
    - Those in most mature parts of the industry (sharply declining revenue)
    - Firms under great financial distress
    - Commercial companies who have other, more attractive options

Findings - Industrial Base

- Different federal funding profiles will drive behavior for hardware and services providers
  - Modest reductions for hardware providers (5% to 10% top line reduction, 15% to 20% procurement reduction)
    - Primes scramble to maintain revenue and profits
      - Smaller (less than $2 Billion) niche acquisitions
      - Revitalized attempts to move into adjacent markets (e.g. Intel, DHS, VA)
    - Non-DoD focused companies may exit market/sell business
    - Small companies search for an exit – sell or merge
    - Specialized technology companies broaden/deepen focus on non-DoD markets
  - Significant Reductions for hardware providers (15% to 20% top line reductions, 30% to 40% procurement reductions)
    - Primes take radical actions (e.g. major mergers, sales of business sectors, acquisitions to focus on non-DoD government or commercial markets, return capital to investors vs. investing in DoD programs)
    - Smaller players leave market or shift focus to DHS, VA, State/Local, etc.
  - Impact less severe on services providers in either case
    - Rely more on O&M funds, less on procurement funds
    - Have easier access to non-DoD customers (more fungible skills)
    - Can cut costs quicker (less overhead and facilities)
    - Fully integrated providers may look for ways to create value by selling or spinning services from hardware and services

Findings - Industrial Base

- Implications for DoD hardware providers
  - Do Nothing/Go Private (milking the business)
    - Less likely to invest in new capabilities, R&D, people development, etc.
    - May refuse to bid on some high cost/risk programs
    - Less responsive to DoD needs and priorities
  - Diversify
    - Loss of management focus
    - Undermine financial base if fail
  - Mergers
    - Even more concentration and less competition
    - Vertical integration and OCI issues
    - Highly levered companies if debt is used to acquire
  - Companies exit the DoD market
    - Danger of single points of failure
    - Lose IP and skilled human resources
    - Reduced, or no competition
    - Problems with obsolescent parts
  - International Market Focus
    - Best markets today in Middle East and Asia
    - Could share burden of supporting U.S. industrial base
    - Tech transfer/export control issues would need be addressed

Findings - Services Sector

- Services sector is increasingly important for DoD as C4ISR, connectivity, software, etc. play a critical role on the battlefield
  - Hardware providers are giving services greater attention in part via acquisition of service companies
  - A major industry of services only firms has emerged as well
- Services sector has grown rapidly over past 15 years
  - Number of companies nearly tripled over 12 years, 1995 to 2007
  - Dollar value of contracts more than doubled to $82B
- Consolidation continues – several very large service companies or sectors of major primes have emerged with revenues of $4B to $14B
  - Primes see this as an opportunity to grow (much tougher in the hardware business)
  - Particular interest in areas expecting to grow rapidly e.g. cyber and information operations
  - This increases competitive pressures on small and mid-size companies
- The role of large primes in services sector is changing and challenged
  - Growing mid-sized providers (CACI, SRS, QinetiQ for examples) have the scope to pursue major contract opportunities
    - Often team to provide further scale and breadth of experience
    - Can be cost competitive and flexible
  - Organizational Conflict of Interest (OCI) issues may result in significant change in the portfolios of hardware prime contractors
    - Northrop Grumman's sale of TASC is an example
    - Government insourcing of jobs also creates uncertainty

Findings - Services Sector

- New service sector dynamics
  - The emergence of task order contracts (GWACs etc.) has fundamentally changed the services contracting landscape
    - Now account for about 70% of contract value
    - Average size of contracts down 40 to 50%
    - Companies are forced to bid on far more opportunities
  - In the past, the size of the contract tended to relate to the size of the provider (small contracts to small companies, medium sized contracts to medium sized companies, etc.)
    - Small companies depend on set asides
    - The largest companies now pursue relatively modest opportunities, e.g. $500K task orders
    - There are a few large, single-source contracts
  - In this new environment the level of competition has increased significantly
    - Price pressures on the small and medium sized companies are intense (forces small companies to rely on set asides)
    - This results in a real squeeze on medium sized companies (e.g. IT contracts to medium sized companies are down 40%)
    - Medium sized companies increasingly acquire in order to grow – can't grow organically
  - Insourcing is having an impact on services companies
    - Complicates planning and staffing
    - Confusion and conflicting rules need to be rationalized

Findings - Access to Technology

- With the rapid growth of technology, much of it international, access to critical technology and products is a growing challenge

- There are issues ensuring access to technology for hardware providers

  - When there is reliance on DoD-unique technology
    - Risk of losing reliable supply and competition as base shrinks
    - Risk of failure to develop or secure nascent capability
    - Potential for off-shore demand to outstrip DoD's

  - When technology/products are integrated with commercial sector
    - Reliability of supply and technological development dependent on commercial viability, market conditions, and international standards
    - Ease of adversary access to equivalent capabilities
    - Domination by foreign sourced supplies and components essential to DoD products, e.g., LCD display technologies, IT switches, Radio-Frequency Identification (RFID)

  - When DoD relies on foreign-sourced technologies and markets
    - U.S. and foreign export control regimes
    - Susceptibility to political pressure for key technology components/supplies
    - Limited control or ability to influence supplier performance

Recommendations

- In managing and shaping the defense industrial base be focused and selective
  - The defense industrial base is not a monolithic industry. It includes providers with different capabilities, challenges, and needs. They range from
    - Very large primes to small businesses
    - Purely government providers to primarily commercial companies
    - Foreign-owned as well as U.S.-owned companies
- An array of policies and tools are required depending on the:
  - Segment of industry
    - Platform builders
    - Major components, combat systems, C4ISR
    - Service providers
  - Competitive landscape (including barriers to entry)
    - Highly competitive (e.g. unmanned aerial vehicles (UAVs))
    - Moderate competition (e.g. radars, engines)
    - Monopoly/duopoly (e.g. ships, fighter aircraft)
  - Access to technology/products
    - Dependent on Defense unique technology (e.g. submarines)
    - Able to exploit dual use technology (e.g. aircraft engines)
    - Heavily dependent on commercial technology (e.g. telecommunications)
- Anticipate possible responses, the implications, and determine the tools DoD has to respond (see appendix 1)

Recommendations

- Preserve competition for major platforms where practical
  - Be prepared to support two or more competitors (despite high cost) in some cases
    - Encourage international suppliers (off-shore companies) to enter market
    - If the cost is prohibitive, encourage mergers to ensure a healthy supplier survives
- Selectively preserve competition in other product lines (e.g. smaller platforms, major components, critical C4ISR systems)
  - Determine key areas to preserve
    - U.S. only supplier markets for unique, critical technologies
    - Markets that include international suppliers in most cases
  - Actively encourage large prime divestitures in the event of sharp budget cuts
    - Goal – healthy, stand-alone companies
    - More focus, creativity, and agility
    - Private equity investors could be key to this option
  - Use tools such as BAAs and prototypes to provide competitive choices/maintain skills
    - Specify needed capability, not the solution
    - Open competition to new/small companies
    - Fund more than one solution

Recommendations

- Use available tools to ensure the services sector remains highly competitive and responsive
  - OCI issues may create challenges in some contracting areas, especially Scientific, Engineering, and Technical Assistance (SETA) work
    - Tighter OCI rules are having an impact
    - Northrop sale of TASC may be first of a trend
    - OCI rules need to be clarified – now some confusion
  - DoD can influence this area in many ways. OCI rules, guidance to contracting officers, and public comments
  - Hart-Scott-Rodino is available to shape consolidations

- If budgets are constrained, DoD will need to be vigilant to ensure the quality of services is not compromised
  - Given the highly competitive nature of most service markets, intense price competition may develop at the expense of strong expertise and deep experience
  - Low price may be appropriate in some cases (low level, commodity services)
  - But in many cases, quality is critical
    - Best value contracting should be pursued
    - Fixed price contracts can be used, but they require well trained, experienced contracting officers, and well thought out requirements and metrics

Recommendations

- Given the key role of contractors supporting combat operations, it is critical they are integrated into the contingency planning process
  - Lack of visibility makes it difficult for companies to plan and be prepared to support future operations
  - This was a major recommendation of the 2008 Defense Business Board study on Strategic Relationships with the Defense Industry

Recommendations

- Ensure the industrial base retains access to crucial technology, expertise, and capabilities
  - Scan, Monitor, Engage, and Anticipate
    - Monitor the financial condition of key companies in the industrial base to gauge their vitality and capacity
    - Engage in open dialogue with the industrial base: give signals of desired direction and assess the magnitude of likely changes
  - Structure Options
    - Support mergers of mid-sized primes (with conditions)
    - Support mergers of sectors of primes where demand is limited (e.g. shipbuilding)
  - When all else fails
    - Use non-profit R&D centers (e.g. APL, Draper Labs) to maintain capability in areas with important but infrequent requirements to develop specialized components
    - Aggressively seek to enhance innovation, both among the traditional providers and new entrants with promising technologies
    - Find and attract valuable commercial technology through R&D funds, directed procurements, requests for qualification, and DoD lab outreach for DoD programs
    - Develop programs to elicit innovative solutions to new/evolving requirements

- All the above recommendations will require deeper engagement with DoD's industrial suppliers

Outbriefs

- Mr. William J. Lynn, Deputy Secretary of Defense
- Dr. Ashton B. Carter, Under Secretary of Defense for Acquisition, Technology & Logistics
- Mr. Brett Lambert, Director of Industrial Policy in the Office of the Deputy Under Secretary of Defense (Acquisition & Technology) (DUSD (A&T))
- Service Acquisition Executives

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Questions?

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Background

Background

- Industrial Base Today
  - Falls into several, quite different, categories each of which may require different DoD tools and policies to manage. Depends on:
    - Capital intensity/barriers to entry
    - Maturity of technology
    - The degree of reliance on DoD-unique technology
    - The extent technology/products are integrated with commercial sector
    - Service-focused providers (now half the market) have quite different characteristics depending on their product mix
      - SETA/Support Services
      - IT, CYBER
      - R&D, Systems Engineering
  - Current financial condition of the industrial base is much stronger than a decade ago
    - Low debt/solid credit ratings
    - With few new program starts, companies are maximizing profits and cash flow
    - Stable profitability and good margins
    - Regular dividend increases are the norm for primes
    - Despite this, stock prices are down 30 to 40% due to “street” doubts about the future

Background

Defense Industrial Base Sectors

Large Scale Primes/Integrators	Major Subsystems/ Components	Innovative Technology Providers	Services
Complex Integration • Aircraft • Missiles • Satellites	Defense-Unique • Combat Systems • Guidance Systems • Sensors • Munitions	Defense-Unique • Low-Observables • Very High Speed Integrated Circuits	Defense-Focused • SETAs • Specialized R&D
Mature Platforms • Ships • Armored Vehicles	Dual Use • Engines • Launch Vehicles	Dual Use • Advanced Materials • Semi-Conductors • Batteries	Dual Use • IT • Cyber

NOTE: Examples are illustrative

Background

- Industrial Base Today (cont)
  - Increased presence of U.S. based, foreign-owned companies
    - BAE Systems, Cobham, Thales, QinetiQ, Fijnmechanica, etc. for example
    - Use SSAs, Proxy Boards to protect U.S.-only technology
    - However, rules discourage access to foreign technology
  - Competitive Landscape
    - Competitive markets
      - New areas (e.g. UAVs, Mine Resistant Ambush Protected (MRAP) vehicles)
      - Most services
    - Limited competition markets
      - Combat aircraft
      - Surface ships
      - Radars, engines, light vehicles
    - Some new players are emerging
      - Firms with specialized new skills such as CYBER
      - Innovative firms using available technology to create effective products (UAVs best example)
      - Some evidence that poor commercial economic prospects may be attracting new players to DoD markets
    - Significant budget cuts almost certainly would further erode competition

Background

Defense Competitive Landscape

Current Landscape

Highly Competitive
- UAVs
- Services

Moderate Competition
- Radars
- Engines
- Ground Vehicles (lightly armored)
- MRAPs

Limited Competition
- Submarines
- Surface Combat Ships
- Tactical Missiles
- Missile Defense Systems
- Communication/Intel Satellites

No Competition
- Aircraft Carriers
- Tanks
- ICBMs
- Heavy Launch Vehicles

Low Budget Scenario

Highly Competitive
- Services

Moderate Competition
- Ground Vehicles (lightly armored)

Limited Competition
- Radars
- Engines
- MRAPs

No Competition
- Aircraft Carriers
- Tanks
- ICBMs
- Heavy Launch Vehicles
- Submarines
- Surface Combat Ship
- Tactical Missiles
- Missile Defense Systems
- Communication/Intel Satellites

Background

- Overarching goals of a robust Defense Industrial Base
  - Enhance competition to drive best value and innovation
    - Prime level competition where practical
    - Major component supplier competition whenever possible
    - Substitute products (i.e. asymmetric competition) can contribute
  - Maintain a sound infrastructure
    - Test and research facilities
    - Unique production capacity when critical
  - Preserve access to innovative technology
    - Commercial-driven technology whenever feasible
    - Defense-unique technology when necessary
  - Preserve access to strong human capital – especially design, system engineering, and systems integration skills

Achieving these goals will be seriously challenged by declining defense spending

Appendix 1

"Industrial Base"

Detailed Findings and Recommendations

Findings - Industrial Base

- Different federal funding profiles will drive behavior
  - Modest reductions (5% to 10% top line reduction, 15% to 20% procurement reduction)
    - Primes scramble to maintain revenue and profits
      - Smaller (less than $2 billion) niche acquisitions
      - Revitalized attempts to move into adjacent markets (e.g. Intel, DHS, VA)
    - Non-DoD focused companies may exit market/sell business
    - Small companies search for an exit – sell or merge
    - Specialized technology companies broaden/deepen focus on non-DoD markets
  - Significant Reductions (15% to 20% top line reductions, 30% to 40% procurement reductions)
    - Primes take radical actions (e.g. major mergers, sales of business sectors, acquisitions to focus on non-DoD government or commercial markets, return capital to investors vs. investing in DoD programs)
    - Smaller players leave market or shift focus to DHS, VA, State/Local, etc.
  - Impact less severe on services providers in either case
    - Rely more on O&M funds, less on procurement funds
    - Have easier access to non-DoD customers (more fungible skills)
    - Can cut costs quicker (less overhead and facilities)
    - Fully integrated providers may look for ways to highlight value to be created by separating services from other operations

Findings - Industrial Base

A. Historical Examples - Diversify - Using Existing Capabilities

	Action	Example	Comment
1.	International Markets (Despite ITAR)	Raytheon – Now 25% to 30% of Business	Asia, Middle East focus Work is more profitable
2.	Other Federal Markets (Much Smaller)		
	a. DHS/Coast Guard	Northrop – building CG Cutters	Early Problems, Cutter Program now on track
	b. Intel/Cyber	All the primes and mid-sized companies	Will it impact innovation?
3.	Commercial Markets		
	a. Renewable Energy	Lockheed – Wave energy	Difficult operating environment
	b. Commercial Aviation	GD Gulfstream	Highly cyclical business
	c. Nuclear Power Plants	Northrop/Ariva Joint Venture	Northrop to build large containment vessels
4.	State/Local Markets		
	a. State of VA	Northrop – IT Outsourcing	State markets very challenging Serious issues w/ contracts

Findings - Industrial Base

B. Historical Examples - Acquire in order to

Action	Example	Comment
1. Broaden Product Line		
a. BAE Systems	United Defense	Ground Vehicle Business
b. Raytheon	Quigley BBN	Info Opns. Business Simulation, Specialized tech
c. Northrop	Essex	High End NSA Support
2. Build Significant Commercial Business		
a. Dell Computers	Perot Systems	Major Healthcare IT Business
b. Various Primes	CSC Commercial IT Business	Opportunity to Build Significant Commercial Business – not able to close
c. General Dynamics	Gulfstream	Leading Private Aircraft Manufacturer

Findings - Industrial Base

C. Historical Examples - Go Private - Private Equity Support

	Action	Example	Comment
1.	Take entire company private		
	a. Large Primes	None	Not feasible given current stock prices & debt markets
	b. Mid-sized Companies Companies of $5B or below	Veritas/DynCorp	Would require significant equity and debt
		Carlyle takes Booz Allen Hamilton private	$5B Company – commercial business separated
2.	Spin out Divisions or lines of Business	Low growth or declining businesses	Best targets - businesses with limited growth prospects but good cash flow (e.g. ships)
		Business with OCI issue Northrop TASC sale to KKR	These types of transactions are currently being assessed

Findings - Industrial Base

D. Return Capital to Shareholders (vs. investing in DoD programs)

1. If significant acquisitions are blocked and conflict issues impact major primes' service businesses, this strategy makes sense
   a. Best value for shareholders – sell off or spin-off pieces of business
      i. Business facing OCI issues
      ii. No growth, good cash flow business
   b. Northrop's sale of TASC will increase interest in this approach

2. Alternative; manage for cash, pay attractive dividend

Findings - Industrial Base

- Implications Vary – Depending on Nature of the Consolidation
  - Mergers of Major Players, especially big primes
    - Could yield significant cost synergies if managed right
    - Competition vs. Centers of Excellence
    - Significant anti-trust issues
  - Mergers of Large Company Divisions (e.g. ships or space systems)
    - Creating a “center of excellence” may facilitate preserving critical skills (at cost of jobs)
    - Should generate cost synergies
    - Offset by less competition
  - Vertical Integration – Acquiring Subcontractors
    - Government may need to carefully oversee “make vs. buy” choices
    - Policy barring profits on subcontractors may drive companies to vertical integration

Findings - Industrial Base

- Implications Vary – Depending on Nature of the Consolidation (cont)
  - Acquisitions by Foreign Based Companies
    - Continues the trend of past 20 years
    - Future budget uncertainty may be slowing process
    - Potential for U.S. to benefit from foreign technology
    - Rules regarding use of proxies/Special Security Arrangements (SSAs) however, limit such access to foreign technology as well as protect US technology
  - Acquiring to Broaden Business Base/Markets
    - No negative implications for competition
    - Acquiring small cutting edge companies could impact their creativity and innovation
      - Founders tend to leave (fat bank accounts)
      - Large company culture can frustrate creative elements of the acquired company
  - Acquisition by Private Equity Firm
    - Risk – will milk business to pay debt, pay fees, etc.

Conclusions - Industrial Base

- DoD Tools to Shape M&A Activity
  - Existing tools are all blunt instruments - clarity on DoD's objectives is needed
  - Hart Scott Rodino (HSR) – useful in most acquisitions
    - Defines rules for future behavior
    - Hard to use in horizontal acquisitions, not likely to have a competition / conflict impact
    - DOJ and DoD sometimes have conflicting objectives
  - Committee on Foreign Investment in the United States (CFIUS) can be effective to manage foreign buyers
    - Most acquisitions are approved routinely
    - Buyers to date primarily UK / West Europe Companies
    - Concerns about US technology have been managed by Proxy Boards or SSAs
  - DoD senior leadership can have some impact using market power and constructive relationships with the industry

Appendix 1A

DEFENSE INDUSTRIAL BASE OPTIONS

Option	Sell off major business segments to raise cash to reward shareholders (the GD model of the 1990s.).
Discussion	Some or conceivably all of the major business segments of a medium/large company could be sold. It could be a DoD focused company or a diversified company selling off its defense oriented business segment. The attributes of the transaction depend on a number of factors: • A strategic buyer could pay more, assuming there would be cost savings from the transaction. But the result would be reduced competition. • A defense oriented prime without a closely related business would have few cost synergies and would likely pay less, but preserve competition. • A financial buyer would likely pay less, but would preserve competition.
Implications for DoD	If preserving a competitor is seen as important, a strategic buyer would not make sense. Another defense-oriented company might be acceptable, and remedies (e.g. continued supplier requirements) could resolve lesser issues. A financial buyer would be acceptable but the focus on cash generation to pay down debt has some problems for DoD (e.g. unlikely to invest in the business)
DoD Tools -	HSR is available for any buyer other than a financial buyer. CIFIUS could be used if the buyer were foreign (e.g. an overseas defense company or sovereign wealth fund)

Appendix 1B

DEFENSE INDUSTRIAL BASE OPTIONS

Option	Go private with participation of a private equity fund.
Discussion	Given current and expected credit markets for the next 1-2 years, a large deal is not practical. Equity required (40% to 50% of the deal) and amount of debt needed probably limits a deal to $8 to $10 billion. Unless the company was growing rapidly (say 10%), the returns would be unacceptable, even for these mid-level deals Over time, larger deals may be possible if credit is more available and stock prices decline significantly (e.g. 4 times EBITDA). This could make the returns adequate for the private equity fund.
Implication for DoD	After a buyout, the company's focus will be on cash generation to pay down debt. This focus will likely reduce its tolerance for risk. Thus it may not bid on some high cost programs and generally be less responsive to DoD priorities. Also the focus on cash could reduce funds for investments including IR&D and more modern facilities. Private equity ownership is not always negative. They force intense focus on low value overhead, and cost effectiveness. Thus lower cost products/services may be feasible.
DoD Tools	DoD's ability to influence a "go private" decision is limited. HSR does not apply, thus voicing concern, asking for commitments re certain actions, etc. is about all DoD can do.

Appendix 2

"Services Sector"

Detailed Findings and Recommendations

Findings – Services Sector

- Services sector continues to grow rapidly
  - Number of companies nearly tripled over 12 years, 1995 to 2007
  - Dollar value of contracts more than doubled to $82B

- Consolidation continues – several very large service companies or sectors of major primes have emerged with revenues of $4B to $14B
  - Primes see this as an opportunity to grow (much tougher in the hardware business)
  - Particular interest in areas expecting to grow rapidly e.g. cyber and information operations

- Conflict issues (OCI) may result in significant change in the portfolios of hardware prime contractors
  - Northrop Grumman's sale of TASC is an example
  - Government insourcing of jobs also creates uncertainty

Findings – Services Sector

Number of Companies

	1995	1999	2007
Large Companies (over $1 Billion)	176	175	228
Medium Companies	13,718	12,098	27,225
Small Companies (as defined by US Government)	30,525	31,267	90,286
Total	44,419	43,540	117,739

- Number of contractors with contracts of less than $25K grew 164%
- Number of contractors with contracts greater then $25K grew 24%

Findings – Services Sector

Value of Contracts (Share)

	1995	1999	2007
Large Companies (over $1 Billion)	37%	40%	45%
Medium Companies	44%	39%	33%
Small Companies (as defined by US Government)	19%	21%	21%

- Large companies - shares grew
- Medium companies - squeezed
- Small companies - shares stable

Findings – Services Sector

- New Dynamics
  - The emergence of task order contracts (GWACs etc.) has fundamentally changed the services contracting landscape
    - Now account for about 70% of contract value
    - Average size of contracts down 40% to 50%
    - Forces companies to bid on far more opportunities
  - The market is growing and highly competitive
  - In the past, the size of the contract tended to relate to the size of the provider (small contracts to small companies, medium sized contracts to medium sized companies, etc.)
    - Small companies depend on set asides
    - The largest companies pursue relatively modest opportunities, e.g. $500K task orders
    - There are a few large, single source contracts
  - In this new environment the level of competition has increased significantly
    - Price pressures on the small and medium sized companies are intense (forces small companies to rely on set asides)
    - This results in a real squeeze on mid-sized companies (e.g. IT contracts to mid-tier companies are down 40%)
    - Mid-tier companies increasingly acquire in order to grow – can't grow organically

Findings – Services Sector

- Top Contractors 1995-2007
  - Top 5 are primarily DoD Primes
    - Lockheed Martin, Boeing, Northrop Grumman, and Raytheon
    - One change, KBR moved into 5th place in lieu of Westinghouse which was acquired by Northrop
  - Contract values increased sharply over the 12 years
    - Total contract value up from $32B to $82B
    - #1 company contract value up 60% to $14.8B
    - #5 company contact value tripled, $1.6B to $4.7B
    - #20 more than tripled, $360M to $1.4B

- Contracts by Type Activity
  - R&D services by far the largest activity for most of the primes – Lockheed, Boeing, and Raytheon
    - Northrop had half of its revenue in Professional and Management Services (PAMS)
    - GD contracts spread over several activities
  - Companies joining the top 20 list provided a broad range of services
    - KBR focused almost entirely on PAMS
    - EDS focused on information services
    - Battelle and Booz Allen Hamilton provided a range of different services

Findings – Services Sector

- Likely Impact of Budget Cuts
  - Impact varies by type service provider and the nature of the reductions in funding (see attached chart)
    - Ending of the Southwest Asia conflicts would sharply impact combat theater services providers (DynCorp, KBR, etc.)
    - Significant cuts in procurement spending impact other firms
      - SETA providers dependant on Program Office spending
      - Insourcing could increase the impact as SETA jobs shift to civil servants
      - If R&D spending is reduced, other firms hurt (e.g. not for profits such as APL and Draper)
    - Some services activities seem largely immune to cuts unless very deep
      - Spending on cyber likely to grow under any scenario
      - Intelligence spending will be unlikely to be reduced significantly
      - 8A/small businesses have broad political support, but sub-contract opportunities will narrow
      - Base operations support is driven by numbers of base/facilities. A new BRAC could hurt but takes time to be felt

Findings – Services Sector

- Likely Impact of Budget Cuts
  - Services providers with fungible expertise can shift focus to non-DoD agencies where funding is growing or at least stable
    - For example, IT providers can focus on health care IT (VA, HHS, private sector)
    - But opportunities are limited. Non-DoD services spending is relatively modest in agencies such as Energy, DHS, or Treasury
    - State/local programs offer opportunities
      - Much more difficult contracting environment
      - Also, budgets are under stress
  - Insourcing is a "wild card" that complicates the picture
    - DoD guidance is unclear and inconsistent with recent OMB directives
    - OSD budget rules give activities an incentive to insource even though total cost likely higher and competition advantage ignored
    - Broad industry support for Secretary Gates initiative to rebuild critical acquisition skills

Findings – Services Sector

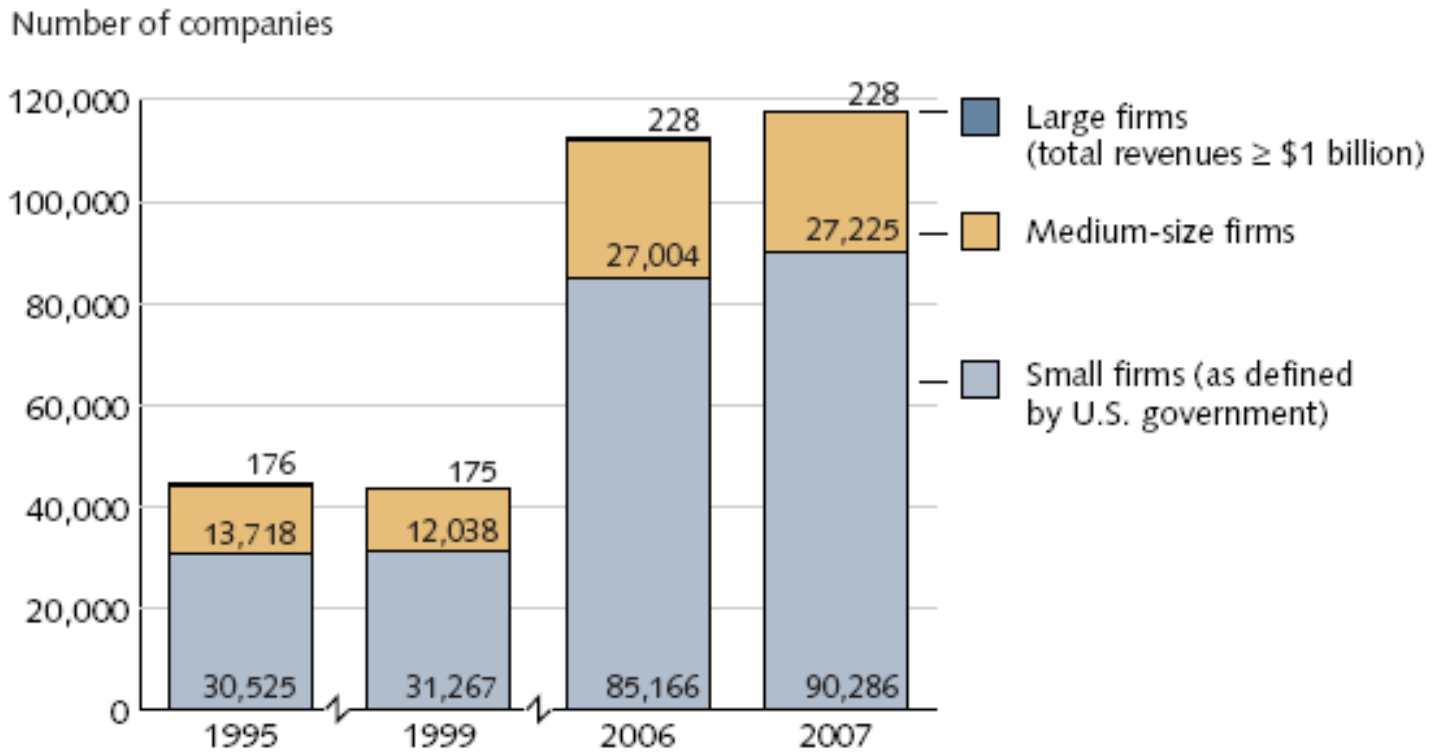
- Support to DoD Examples

Type Company	Examples*	Budget Impact	Comments
Technology			
IT/Telecom	Accenture Most Primes SAIC, SRA	A growing area for past decade	Could be squeezed by lower budgets
Intel/Cyber	Booz Allen Small companies Most Primes	Modest if any impact Largely O&M funded	Seen as growth area regardless of top line
R&D	Draper APL, Lincoln Labs	Deep procurement cuts could hurt	Potential to play a role in a "Centers of Excellence" strategy
Analytical Services	Most FFRDCs	Modest funding Impact small	With lower budgets, expect pressure from for-profit sector to limit FFRDC awards
Support Services			
SETA	SAIC, QinetiQ	Tied to weapons programs Primes face OCI issues	Could be hurt by insourcing
Administrative	8A and small business firms	Dollars are modest so cuts are likely to be small	Have solid political support
Operations Support			
Base Operations	Many Primes, DynCorp	Would be hurt by base closures /cut –backs	Insourcing could reduce revenues
Combat Theater	Flour, DynCorp KBR	Depends on level of combat operations	KBR has lost significant market share

* Not an endorsement. A representation of companies.

Findings – Services Sector

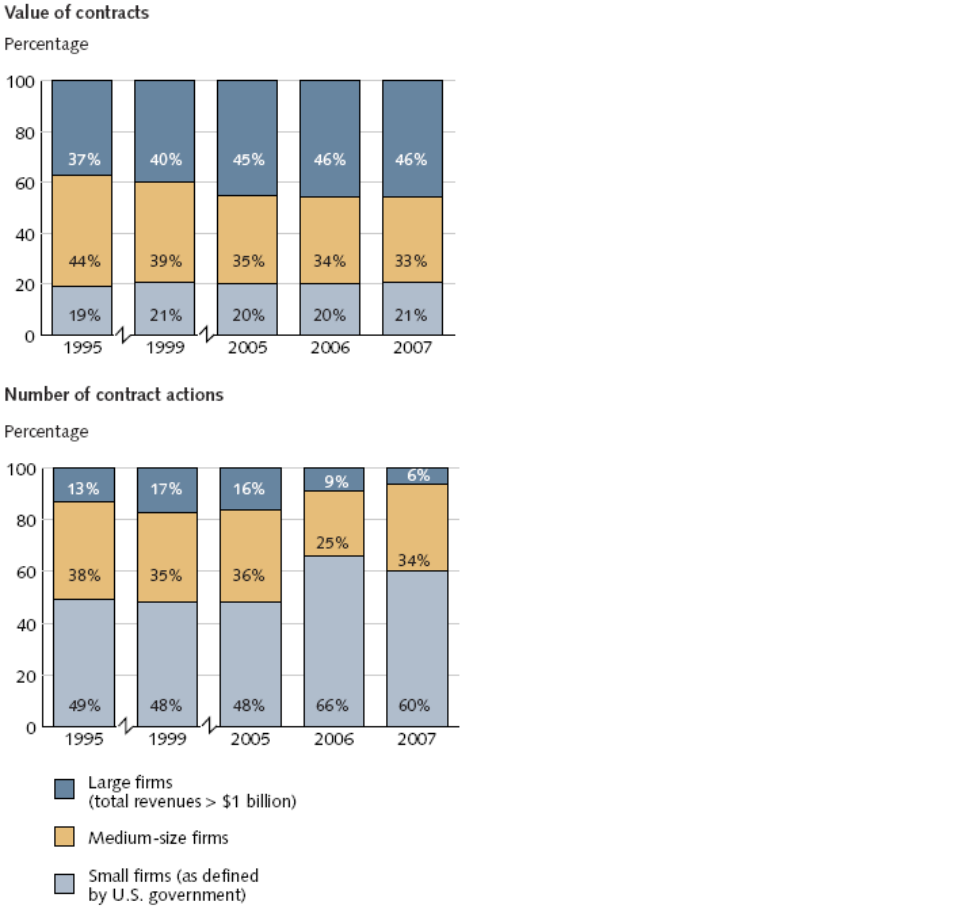
Figure 3.13. Number of Small, Medium, and Large Firms in the Federal Professional Services Industry, 1995, 1999, 2006, and 2007



Source: CSIS Defense-Industrial Initiatives Group

Findings – Services Sector

Figure 3.14. Market Share of Small, Medium, and Large Firms Participating in the Federal Professional Services Industry, by Value of Contracts and by Number of Contract Actions, 1995, 1999, 2005, 2006, and 2007



Source: Federal Procurement Data System; analysis by CSIS Defense Industrial Initiatives Group.

Findings – Services Sector

Table 3.4. Top 20 Contractors, 1995 and 2007

	1995		2007	
Rank	Company	Value of contract actions ($, thousands)	Company	Value of contract actions ($, thousands)
1	Lockheed Martin	9,189,708	Lockheed Martin	14,765,357
2	Westinghouse	3,216,178	Boeing	9,768,474
3	Boeing	2,959,228	Northrop Grumman	9,417,107
4	Northrop Grumman	2,515,868	Raytheon	5,274,520
5	Raytheon	1,624,159	KBR	4,705,732
Subtotals for Top 5		19,505,141		43,931,190
6	CSC	1,505,354	SAIC	4,411,370
7	Rockwell	1,464,352	General Dynamics	4,281,834
8	SAIC	1,236,287	L-3 Communications	4,123,000
9	Loral	1,203,619	Computer Sciences Corporation	3,605,251
10	Sandia Corporation	1,159,740	Battelle	3,415,111
11	General Electric	1,121,452	Sandia Corp.	2,466,164
12	TRW	1,097,035	EDS	2,434,740
13	DynCorp	640,453	BAE Systems	2,298,812
14	Newport News	630,387	Booz Allen Hamilton	2,277,128
15	Bechtel	496,040	ITT Industries, Inc.	1,662,442
16	IBM	446,053	Bechtel	1,514,905
17	Unisys	425,543	CACI	1,461,084
18	MITRE	380,305	Fedex	1,419,039
19	United Technologies	377,825	Honeywell, Inc.	1,415,423
20	General Dynamics	360,028	Westinghouse	1,371,358
Totals for Top 20		32,049,614		82,088,851

Source: Federal Procurement Data System; analysis by CSIS Defense-Industrial Initiatives Group.

Findings – Services Sector

Table 3.6. Top 20 Contractors, by Activity Category, 2007 (dollars, thousands)

Contractor	ICT	PAMS	R&D	ERS	FRS	Other	Total
Lockheed Martin	1,144,639	2,662,898	9,038,109	1,536,108	113,624	269,979	14,765,357
Boeing	222,514	1,010,240	8,047,714	414,837	31,877	41,292	9,768,474
Northrop Grumman	1,300,090	4,768,992	2,771,840	456,007	55,904	64,273	9,417,107
Raytheon	181,315	978,946	2,910,579	651,162	302,056	250,463	5,274,520
KBR	0	4,781,502	-119,557	0	43,786	0	4,705,732
SAIC	1,820,777	1,528,979	805,221	190,378	44,193	21,823	4,411,370
General Dynamics	635,429	1,025,316	1,212,947	1,335,972	10,791	61,379	4,281,834
L-3 Communications	348,057	2,069,059	341,659	1,237,498	29,640	97,087	4,123,000
Computer Sciences Corporation	1,334,808	1,309,070	215,464	561,041	166,655	18,212	3,605,251
Battelle	5,481	136,206	971,007	3,942	2,277,987	20,488	3,415,111
Sandia Corp.	0	5	0	0	2,466,159	0	2,466,164
Electronic Data Systems Corporation	2,310,188	120,636	98	1,431	147	2,240	2,434,740
BAE Systems	171,309	950,258	468,843	643,783	57,441	7,179	2,298,812
Booz Allen Hamilton	396,285	1,244,005	554,186	5,495	8,171	68,986	2,277,128
ITT Industries, Inc.	215,096	380,156	465,516	462,654	139,012	8	1,662,442
Bechtel	0	69,390	477,313	0	531,113	437,088	1,514,905
CACI	362,930	857,945	194,181	31,770	3,544	10,714	1,461,084
Fedex	310	36,393	5,075	2,309	38	1,374,913	1,419,039
Honeywell, Inc.	212,382	380,962	70,081	170,485	580,471	1,042	1,415,423
Westinghouse	0	0	0	0	1,371,358	0	1,371,358
Total	10,661,610	24,310,957	28,430,278	7,704,872	8,233,967	2,747,166	82,088,851

Source: Federal Procurement Data System; analysis by CSIS Defense-Industrial Initiatives Group.

Conclusions– Services Sector

- Recognize that the role of large primes in services sector is being challenged
  - Growing mid-sized providers (CACI, SRS, QinetiQ, etc. for examples) have the scope to pursue major contract opportunities
    - Often team to provide further scale and breadth of experience
    - Can be cost competitive and flexible
  - OCI issues a problem in some contracting areas, especially SETA work
    - Tighter OCI rules are having an impact
    - Northrop sale of TASC may be first of a trend
    - OCI rules need to be clarified – now some confusion
  - DoD can influence this area in many ways. OCI rules, guidance to contracting officers, and public comments
  - Hart-Scott-Rodino is available to shape consolidations
  - Confusion and conflicting rules regarding insourcing need to be rationalized

Conclusions– Services Sector

- As budgets are constrained, DoD should ensure quality of services is not compromised
  - Low price may be appropriate in some cases (low level, commodity services)
  - But in many cases, quality is critical
    - Best value contracting should be pursued
    - Fixed price contracts can be used, but they require well trained, experienced contracting officers, and well thought out requirements and metrics

- Given the key role of contractors supporting combat operations, it is critical they are integrated into the contingency planning process
  - Lack of visibility makes it difficult for companies to plan and be prepared to support future operations
  - This was a major recommendation of the 2008 Defense Business Board study on Strategic Relationships with the Defense Industry

Appendix 3
"Access to Technology"
Detailed Findings and Recommendations

Findings – Access to Technology

- The pressure on the DoD top line will translate into less money to drive technological investment, while the industrial base will cut costs and people, and put additional pressure on R&D spending.

- The degree of reliance on DoD-unique technology impacts access
  - Risk of losing reliable supply
    - Concentration in a few (possibly only one) suppliers for a DoD-unique technology risks that DoD will be unable to meet minimum quantity or terms necessary to provide technology essential to a program's economic viability
  - Risk of failure to develop or secure nascent capability
    - DoD needs to nurture promising technologies in early-stage development by small companies / start-ups. Absent a non-DoD market, such enterprises are likely to be starved without early DoD support
    - Current levels of R&D are inadequate for the development of needed technologies
  - Potential for off-shore demand to outstrip DoD's
    - DoD is no longer the only market for defense-specific technologies and products, and can essentially be out-bid by larger foreign customers who may seek exclusive deals
    - Critical DoD technology components may be produced more cheaply overseas, some of which may migrate into commercial products

Findings – Access to Technology

- The extent technology/products are integrated with commercial sector
  - Reliability of supply and technological development dependent on commercial viability, market conditions and international standards
    - The technical standards that govern key product characteristics, such as interoperability and security, are increasingly governed by international organizations dominated by other nations. There is a danger that such standards will reflect the preferences of foreign producers, putting the U.S. industry at a technological disadvantage in product markets important to the Department
    - Suppliers eager to meet the larger commercial markets may be increasingly unwilling to satisfy military-specific requirements (especially with risks to be caught up in ITAR)
  - Ease of adversary access to equivalent capabilities
    - Increasingly the technologies that drive battlefield capabilities are developed and produced outside of DoD's control or influence. Speed to adapt is an advantage of agile adversaries and not DoD, particularly in asymmetric environments (e.g. IEDs)
  - Domination by foreign sourced supplies and components essential to DoD products, e.g., LCD display technologies, IT switches, RFIDs
    - This is risky economically but also as a matter of security. Degradation of assured availability of supply can be difficult to monitor

Findings – Access to Technology

- Access to foreign sourced technologies and markets
  - U.S. and foreign export control regimes
    - Controls intended to prevent proliferation of dual-use technology can impede the integration of foreign technology and cooperation, and hinder U.S. firms from obtaining economies of scale
    - The “Buy American Act” intended to protect U.S. business, forestall off-shoring, and ensure trusted sources, can impede the use of superior foreign technology
  - ITAR limitations
    - Impedes joint development of technologies, even with allies, e.g., Joint Strike Fighter, when cost sharing is important to defray costs
    - Foreign supplies develop “ITAR free” components putting U.S. companies at a competitive disadvantage
  - Susceptibility to political pressure for key technology components/supplies
    - Lithium for hybrid-ion batteries for hybrid electric engines is an example

Conclusions– Access to Technology

- Develop an enterprise level strategic technology view to complement the JCIDS process. This is essential for the Department to determine where it should invest its limited resources
  - It will be necessary to engage the technology community and develop in-house capability to monitor technology trends and developments in light of emerging and anticipated requirements. *See* DSB 2006 study of 21st Century Strategic Technology Vectors

- Preserve key technologies, expertise, and capabilities
  - Support mergers of mid-sized primes (with conditions) to ensure viability
  - Support mergers of sectors of primes where demand is limited (e.g. submarines)
  - Create funding sources to support Centers of Excellence
    - R&D incentives
    - Service RDT&E funding
    - Prototype programs
  - Use non-profit R&D centers to develop specialized components and maintain capability in areas with important but infrequent requirements

Conclusions– Access to Technology

- Aggressively seek to enhance innovation, both among the traditional providers and new entrants with promising technologies
  - Use R&D funds, directed procurements, requests for qualification, and DoD lab outreach to find and attract valuable commercial technology for DoD programs
  - Pursue programs to elicit innovative solutions to new/evolving requirements, providing sufficient funds to support longer-term, potentially disruptive technologies
- Monitor the offshore migration of key technologies and the potential for disruption in supply
- Search globally for technologies that may become important to DOD and/or its adversaries (commercial and foreign)
  - Added funding for intelligence S&T programs would be a valuable step